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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/302,154	04/29/1999	EDWIN PETER DAWSON PEDNAULT	Y0999-214	6531

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EXAMINER

KAPADIA, MILAN S

ART UNIT PAPER NUMBER

3626

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/302,154

Applicant(s)

PEDNAULT, EDWIN PETER
DAWSON

Examiner

Milan S Kapadia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Notice to Applicant

1. This communication is in response to the RCE filed 07 February 2003. Claims 1-5 are pending. Claim 4 has been amended.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/30/02 has been entered.

Claim Rejections - 35 USC §101

3. Claims 1-5 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

(A) The basis of this rejection is set forth in a two-prong test of:

- (1) whether the invention is within the technological arts; and
- (2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural

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phenomena) that do not apply, involve, use, or advance the technological arts fail to promote the "progress of science and the useful arts" (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory subject matter. For a process claim to pass muster, the recited process must somehow apply, involve, use, or advance the technological arts.

In the present case, claims 1-5 only recite abstract ideas. The recited steps of merely constructing segmentation-based models that satisfy constraints on the statistical properties of the segments, do not apply, involve, use, or advance the technological arts since all of the recited steps can be performed in the mind of the user or by use of a pencil and paper. These steps only constitute an idea of how to select one medical claim over another.

Additionally, for a claimed invention to be statutory, the claimed invention must produce a useful, concrete, and tangible result. In the present case, the claimed invention produces scores for various claims (i.e., repeatable) used in determining and selecting the best medical claim (i.e., useful and tangible).

Although the recited process produces a useful, concrete, and tangible result, since the claimed invention, as a whole, is not within the technological arts as explained above, claim 1 is deemed to be directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Apte et al (5,970,464) in view of Simoudis et al. (5,692,107).

(A) As per claim 1, Apte discloses a computer implemented system comprising program instructions executable by the machine (Apte; col. 3, lines 2-5; note the kernel is software which may be written in C++, therefore are program instructions executable by the machine) to perform method steps for constructing segmentation-based models that satisfy constraints on the statistical properties of the segments, the methods steps comprising:

(1) presenting a collection of training data records comprising examples of input values that are available to the model together with the corresponding desired output value(s) that the model is intended to predict; (Apte; col. 3, lines 20-33 and col. 4, lines 17-27; the examiner interprets "data in data warehouse" as "input values that are available to the model" and "pure premium characteristics" as "desired output values that the model is intended to predict")

(2) generating on the basis of the training data a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the step of generating comprising performing optimization steps comprising:

- a) generating alternate training data segments and associated segment models; (Apte; col. 4, lines 33-40)
- b) evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint (Apte; col. 4, lines 28-33; the examiner interprets “ actual pure premium” as a “statistical constraint.”) ; and
- c) selecting a final plurality of segment models and associated segments from among the alternates evaluated that have satisfactory evaluations (Apte; col. 4, lines 33-36; The examiner interprets “fine tuning the eligibility criteria for the product, until the segments that that are dragging the overall costs down are satisfactorily removed” as “selecting a final plurality of segments that have satisfactory evaluations.”)

Apte fails to expressly disclose “a program storage device readable by a

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machine, tangibly embodying a program of instructions” in the preamble. However, this feature is old and well known in the art as evidenced by Simoudis’s teachings with regards to a program storage device readable by a machine, tangibly embodying a program of instructions (Simoudi’s; col. 3, line 49-col. 4, line 15). It is respectfully submitted, that it would have been obvious to one having ordinary skill in the art at the time the invention was made to expand Apte’s computer-implemented method of underwriting profitability analysis to include this limitation, as taught by Simoudis, with the motivation of providing means for storage and retrieval of program data and instruction to be used at a later time.

(B) As per claim 2, Apte discloses a computer implemented system comprising program of instructions executable by the machine (Apte; col. 3, lines 2-5; note the kernel is software which may be written in C++, therefore are program of instructions executable by the machine) to perform method steps for constructing segmentation-based models that satisfy constraints on the statistical properties of the segments, the methods steps comprising:

- (1) presenting a collection of training data records comprising examples of input values that are available to the model together with the corresponding desired output value(s) that the model is intended to predict (Apte; col. 3, lines 20-33 and col. 4, lines 17-27; the examiner interprets “data in data warehouse” as “input values

that are available to the model” and “pure premium characteristics” as “desired output values that the model is intended to predict”);

(2) generating on the basis of the training data a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the step of generating comprising performing optimization steps comprising:

- a) generating alternate training data segments and associated segment models using statistical constraints to guide the construction of the data segments in a closed-loop fashion so as to ensure that the resulting data segments satisfy the statistical constraints; (Apte; col. 4, lines 28-39; The examiner interprets “actual pure premiums” as a “statistical constraint.” The examiner also interprets the generating as being done in “a closed loop fashion,” because the statistical constraint, “actual pure premium,” is part of the eligibility criteria which is evaluated and then used to regulate the construction of potential segments (Apte; col. 4, lines 8-16)

- b) selecting a final plurality of segment models and associated segments from among the alternates generated (Apte; col. 4, lines 33-36; The examiner interprets “fine tuning the eligibility criteria for the product, until the segments that that are dragging the overall costs down are satisfactorily removed” as “selecting a final plurality of segments from among the alternates generated.”)

Apte fails to expressly disclose “a program storage device readable by a machine, tangibly embodying a program of instructions” in the preamble. However, this feature is old and well known in the art as evidenced by Simoudis’s teachings with regards to a program storage device readable by a machine, tangibly embodying a program of instructions (Simoudi’s; col. 3, line 49-col. 4, line 15). It is respectfully submitted, that it would have been obvious to one having ordinary skill in the art at the time the invention was made to expand Apte’s computer-implemented method of underwriting profitability analysis to include this limitation, as taught by Simoudis, with the motivation of providing means for storage and retrieval of program data and instruction to be used at a later time.

(C) As per claim 3, Apte discloses a computer implemented system comprising program instructions executable by the machine (Apte; col. 3, lines 2-5 and col. 4, lines 17-27; note the kernel is software which may be written in C++, therefore are program

instructions executable by the machine) to perform method steps for constructing segmentation-based models that satisfy constraints on the statistical properties of the segments, the methods steps comprising:

(1) presenting a collection of training data records comprising examples of input values that are available to the model together with the corresponding desired output value(s) that the model is intended to predict; (Apte; col. 3, lines 20-33 and col. 4, lines 17-27; the examiner interprets "data in data warehouse" as "input values that are available to the model" and "pure premium characteristics" as "desired output values that the model is intended to predict")

(2) generating on the basis of the training data a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the step of generating comprising performing optimization steps comprising:

- a) generating alternate training data segments and associated segment models; (Apte; col. 4, lines 33-40)
- b) adjusting the alternate pluralities so that the resulting data segments satisfy the statistical constraints (Apte; col. 4, lines 28-39; The examiner interprets "actual pure

premiums” as a “statistical constraint” and “fine tuning” as a form of “adjusting”)

Apte fails to expressly disclose “a program storage device readable by a machine, tangibly embodying a program of instructions” in the preamble. However, this feature is old and well known in the art as evidenced by Simoudis’s teachings with regards to a program storage device readable by a machine, tangibly embodying a program of instructions (Simoudi’s; col. 3, line 49-col. 4, line 15). It is respectfully submitted, that it would have been obvious to one having ordinary skill in the art at the time the invention was made to expand Apte’s computer-implemented method of underwriting profitability analysis to include this limitation, as taught by Simoudis, with the motivation of providing means for storage and retrieval of program data and instruction to be used at a later time.

(D) As per claim 4, Apte discloses a computer implemented system comprising program instructions executable by the machine (Apte; col. 3, lines 2-5; note the kernel is software which may be written in C++, therefore are program instructions executable by the machine) to perform method steps for constructing segmentation-based models of insurance risks, the methods steps comprising:

- (1) presenting a collection of training data comprising examples of historical policy and claims data; (Apte; col. 3, lines 6-19)

(2) generating on the basis of the training data a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the step of generating comprising performing optimization steps comprising:

- a) generating alternative pluralities of segment models;
(Apte; col. 4, lines 33-40)
- b) comparing said alternative pluralities of segment models based on the corresponding statistic models of insurance risk, (Apte; col. 4, lines 28-33; The examiner interprets “actual pure premiums” as “being based on the corresponding statistic models of insurance risk”)
- c) selecting a final plurality of segment models and associated segments from among the alternates generated so as to optimize aggregate numerical criteria for the plurality (Apte; col. 4, lines 33-36; The examiner interprets “fine tuning the eligibility criteria for the product, until the segments that that are dragging the overall costs down are satisfactorily removed” as “selecting a final plurality of segment form among the alternates generated

as to optimize aggregate numerical criteria for the plurality.”)

Apte fails to expressly disclose “a program storage device readable by a machine, tangibly embodying a program of instructions” in the preamble and fails to expressly disclose the alternative pluralities of segment models are generated in one of a top-down fashion and a bottom-up fashion. However, this feature is old and well known in the art as evidenced by Simoudis’s teachings with regards to a program storage device readable by a machine, tangibly embodying a program of instructions (Simoudis; col. 3, line 49-col. 4, line 15) and generating alternative pluralities of segment models in one of a top-down fashion and a bottom-up fashion (Simoudis; abstract). It is respectfully submitted, that it would have been obvious to one having ordinary skill in the art at the time the invention was made to expand Apte’s computer-implemented method of underwriting profitability analysis to include these limitations, as taught by Simoudis, with the motivation of creating reliable predictive models using data mining across multiple and diverse databases (Simoudis; col. 2, lines 1-3).

(E) As per claim 5, Apte teaches wherein said evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint comprises:

performing a test whose outcome is not equivalent to a comparison between, on the one hand, the number of training records of at least one species of training records belonging to the segment and, on the other hand, a numerical quantity that may depend on the combination of species of training records being considered but that is

otherwise constant for all generated segments that are evaluated (Apte; col. 4, lines 28-40; the examiner interprets the "what-if scenario analysis" as a from of "test whose outcome is not equivalent to a comparison between, on the one hand, the number of training records of at least one species of training records belonging to the segment and, on the other hand, a numerical quantity that may depend on the combination of species of training records being considered but that is otherwise constant for all generated segments that are evaluated.")

Response to Arguments

6. Applicant's arguments filed 12/30/02 have been fully considered but they are not persuasive. Applicant's arguments will be addressed herein below in the order in which they appear in the response filed 12/30/02.

(A) At page 4 of the 12/30/02 response, Applicant argues that "...Apte ... would still fail to achieve the technique of the present invention, as described exemplarily by the limitation in claim 1: 'evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint'." The applicant supports the argument by stating "... the present invention provides a technique analogous to a closed loop, as explained briefly in lines 20-25 of page 33, by applying statistical constraints as an integral part of the method for splitting larger segments into smaller segments." In response, it is noted that the features upon which applicant relies (i.e., closed loop and

applying statistical constraints as an integral part of the splitting larger segments into smaller segments) are not recited in the rejected claim (s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 998 F.2d 1181, 26 USPQ2d 1057 (Fed Cir. 1993). Therefore, it is respectfully submitted, that the Examiner's interpretation of "evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint" as presently claimed is not improper.

Furthermore, as presently claimed, the step of "evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint" occurs after "generating alternate training data segments and associated segment models." As such, it is respectfully submitted, that the applying of "statistical constraints" occurs after the segments are already generated.

(B) At pages 4 and 5 of the 12/30/02 response, Applicant argues that "... the Examiner makes several incorrect interpretations" in reference to claim 1. In response, first the Examiner respectfully submits that the Applicant has misinterpreted the Examiner's interpretations of the applied art. The Applicant cites a passage that defines "pure premium." However, it is respectfully submitted, that the Examiner never stated that the "pure premium" should be interpreted as the "desired output values," but stated that the "pure premium characteristics" should be interpreted as "desired output values." As such, in column, 3, lines 20-33 and also column 4, lines 17-27, Apte teaches that the models is intended to produce segments with a "particular set of pure

premium characteristics,” which the Examiner interprets as the “desired output value (s) the model is intended to predict.”

(C) At pages 5 and 6 of the 12/30/02 response, Applicant argues that “In reality, the phrase ‘statistical constraint’ as used in the present application, has no counterpart in Apte ... ,” in reference to claim 1. The Applicant further argues that “This use of applying statistical constraints to guide the process of splitting larger segments into smaller suitable population segments is a distinguishing feature of the present invention and provides a ‘closed loop’ technique for generating segments that is heretofore unknown in the art.” In response, it is noted that the features upon which applicant relies (i.e., closed loop and applying statistical constraints to guide the process of splitting larger segments into smaller suitable population segments, and generating new segments) are not recited in the rejected claim (s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 998 F.2d 1181, 26 USPQ2d 1057 (Fed Cir. 1993). Therefore, it is respectfully submitted, that the Examiner’s interpretation of “evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint” as presently claimed is not improper.

Furthermore, as presently claimed, the step of “evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint” occurs after “generating alternate training data segments and associated segment

models.” As such, it is respectfully submitted, that the applying of “statistical constraints” occurs after the segments are already generated.

(D) At page 6 of the 12/30/02 response, Applicant argues the differences between “selecting the final plurality of segments that have satisfactory evaluations” as taught by Apte and the Applicant’s invention, in reference to claim 1. ”In response, it is noted that the features upon which applicant relies (i.e., the “selecting a final plurality of segments that have satisfactory evaluations,” as used in the present invention, referring to a method step in a data mining process that could be used, for example, to segment policyholders into homogeneous risk groups prior to scenario analysis) are not recited in the rejected claim (s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 998 F.2d 1181, 26 USPQ2d 1057 (Fed Cir. 1993). Therefore, it is respectfully submitted, that the Examiner’s interpretation of “selecting the final plurality of segments that have satisfactory evaluations” as presently claimed is not improper.

(E) At page 7 of the 12/30/02 response, Applicant argues that “Although the Examiner is correct in implying that scenario analysis is a closed-loop process, scenario analysis has a different purpose than, and cannot be equated with, the data mining process that is the subject of the present application”, in reference to claims 2 and 3. ”In response, it is noted that the features upon which applicant relies (i.e., the data mining step that must be performed prior to scenario analysis ...) are not recited in

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the rejected claim (s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 998 F.2d 1181, 26 USPQ2d 1057 (Fed Cir. 1993). Therefore, it is respectfully submitted, that the Examiner's interpretation of "construction of segmentation-based models" as presently claimed is not improper.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Milan S Kapadia whose telephone number is 703-305-3887. The examiner can normally be reached on Monday through Thursday, 8:30 A.M. to 6:00 P.M. In addition the examiner can be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Thomas can be reached on 703-305-9588. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

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DINH X. NGUYEN
PRIMARY EXAMINER